REMARKS/ARGUMENTS

1. The Office Action Dated December 17, 2003 has been carefully considered. Reconsideration of this application, in view of the following remarks, is respectfully requested.

I. References

2. The following U.S. patent was considered in the office action:

- US Patent 5,715,823 ("Wood"), filed September 25, 1996.
- US Patent 5,882,206 ("Gillio"), filed March 29, 1995
- US Patent 5,920,317 ("McDonald"), filed June 11, 1996
- US Patent 6,009,346 ("Ostrow"), filed January 2, 1998.

II. Overview of Office Action

3. The office action:

a. rejected claims 1-7, 23-27, 33, 34-37 as being obvious in light of Wood in view of McDonald, under 35 U.S.C. 103(a), and

b. rejected claims 32, 38-43 as being obvious in light of Wood in view of McDonald, and further in view of Gillio and Ostrow under 35 U.S.C. 103(a).

III. Claim Rejections under 35 U.S.C. 103(a)

4. The office action rejected claims 1-7, 23-27, 33, 34-37 as being obvious in light of Wood in view of McDonald, under 35 U.S.C. 103(a).

Terminology

5. Wood teaches an invention that combines two areas of art: one the art of medical imaging, specifically ultrasound imaging; and the second, the art of computer graphics images and video as generally used with the World Wide Web ("Web"). Both of these areas of art have specific technical terms of art. The same word may have a substantially different meaning in one art area than that word would have in the other art area. This is true of several terms in the convergent areas covered by both Wood and the present application. For example, the word "image" may mean one thing to a medical doctor and a substantially different thing to a computer graphics expert. One skilled in art of these applications would need to have an understanding of both the art of medical imaging and the art of computer graphics and video and would have to carefully read the specifications to determine the proper meaning of the word in a particular context.

Woods Meanings of "Video"

6. It is clear from the Wood specification that the term "video" is used in the Internet Web or conventional sense. (See, e.g. Wood 3:6-9 and "Different Meaning of 'Video' in my reply dated June 17, 2004). Prior to the invention of the present application, live Internet streaming of clinical quality medical video was not possible with conventional equipment and Internet connections known to Wood. This is precisely why Wood does not disclose the display of live transmissions of video. Instead, Wood teaches transmission of single frames or a relatively small or finite number of predetermined frames in a cineloop.

Pre-recorded Cineloops or MPEG Files Versus Video Streams

7. It is clear from the Wood specification that the term "image" is used to refer to single frame, such as a JPEG or GIF image, or to a finite number of predetermined frames, such as a cineloop. See "image", "cineloop", and "click an image" in Figures 5 and 14, "images" in Figures 12 and 13, JPEG and GIF images (Wood 10:2-9). The description of the update button in Fig 10 (11:44-49) shows that the remotely displayed image is a *single frame* that is updated by displaying the "ultrasound image most recently produced". Cineloops are described as "animated real time loops of images" (i.e. loops of single frames) that are displayed in HTML Web pages (Wood 8:10-15) (e.g. animated GIFs). These uses are all consistent with the term as used in the field of computer graphics and video as used in the Web and are *not* consistent with the term as used in medical imaging.

8. The office action acknowledges that Wood does not explicitly teach video streams, but relies on McDonald to teach video streams (McDonald 4:15-18). McDonald does teach that the ultrasound machine (a medical test device) outputs ultrasound images as an "analog video signal stream". However, McDonald does not teach that the analog stream is transmitted or received as stream. Instead McDonald teaches "the capture station 22 converts the analog video signal stream into digital data which is stored in a digital data file" (McDonald 4:17-20). Only after a finite number of frames have been stored in the file, is the file transmitted over the network for review. McDonald only teaches a store-and-forward system, not a system where a stream of video images is *received* from the medical test device and *distributed* by a transmitter and received by a receiver.

Live and Real-time Streaming versus Store-and-Forward

9. In the context of video transmission systems, the terms live, real-time, and store-and-forward have different meanings. Live video is video that can be viewed as it is being transmitted. Real-time video is displayed at the same frame rate that it was transmitted live, or at the same frame rate that it was captured (as opposed to slow motion). Because live video is always real-time, those skilled in the art sometimes use real-time to mean live. Video can be recorded and played back in real-time. In order to have transmission, receipt, and display of live or recorded video in real-time the video data must be streamed.

10. In a store-and-forward system, video frames can be captured in real-time, stored as a finite number of predetermined frames in a file, transferred (or forwarded) at a rate *less than* real-time, and then played back in real time.

Wood Is Not Live, But Store-and-Forward

11. Wood only uses of the term "real time" twice in conjunction with images (i.e. "animated real time loops of images" at 8:14-15, and "play the real time image sequence" at 9:62-63)[1]. It is clear that both of these uses refer to real-time *playback* and not real-time *transmission*. Wood only discloses a store-and-forward system, not a live system.

McDonald Is Not Live, But Store-and-Forward

12. McDonald does not teach that the analog stream is transmitted or received as stream. Instead McDonald teaches that "the capture station 22 converts the analog video signal

[1] A third use of the term real-time is used to describe the multitasking nature of the multi-tasking operating system (12:13-23).

stream into digital data which is stored in a digital data file" (McDonald 4:17-20) Only after a finite number of frames have been stored in the file, is the file transmitted over the network for review. McDonald teaches that "the MPEG data output by the encoder card is stored directly to magnetic hard disk on the capture station 22 (see FIG. 1), and later archived to a CDR disk after the ultrasound scan is completed." (McDonald 5:66-6:2, emphasis added, see also McDonald 6:20-21). McDonald also teaches that the file has a maximum finite size, "When a user begins an ultrasound scan capture session, the ultrasound image capture module checks the host hard disk of the capture station 22 to determine whether enough hard disk space is available to record forty minutes of ultrasound video in a step 60. Forty minutes is considered a maximum session length for an ultrasound study. " (McDonald 6:4-10, emphasis added.) If there is not enough hard disk space to store the predetermined length of video, the system will not capture the video, "[i]f there is insufficient space on the capture station 22 hard disk, the ultrasound image capture module displays an error message in step 62 and the program ends." (McDonald 6:11-13, emphasis added). McDonald only teaches a store-and-forward system, not a system where a stream of video images is *received* from the medical test device and *distributed* by a transmitter and received by a receiver. McDonald only discloses a store-and-forward system, not a live system. McDonald does not teach steaming video but conventional storing to a file and then transferring the file over a network for later review (not live viewing).

Wood Combined with McDonald

13. Wood does not disclose the transmission of live, clinical quality medical video streams. Wood is limited to a Web based system where the sending computer includes an HTTP

server (item 30 in Fig 1 and 2, and as shown in Fig 15 and 16) and the receiving computer includes a Web Browser (item 104 in Fig 1 and 3, and as shown in Fig 4-14).

14. McDonald teaches the capture of a video stream from a medical test device which is stored in a file on a capture module; however McDonald does not teach receipt of the video stream by a transmitter which then distributes the video stream over a network where the video stream is received by a receiver.

15. McDonald does not teach real-time viewing of video at a receiver. Instead McDonald only teaches re-viewing of video stored in a file.

16. Thus the combination of Wood and McDonald does not teach the claim limitations of the present invention. Specifically:

- Claim 1: "b. a transmitter coupled to the medical test device for receiving and selectively distributing data representing the stream of video images; and c. one or more remote receivers for communicating with the transmitter and configured to receive the data representing the stream of video images from the transmitter."
- Claim 23: "b. a transmitter coupled to the medical device for selectively distributing the plurality stream of video images; and c. a remote receiver coupled to the transmitter for selectively receiving the plurality stream of video images ..., whereby the user can see the results of the remote control commands in substantially real-time."

- Claim 33: "A system for transmitting a real-time video over a network, said system comprising:

  a. a transmitter containing one or more digitized frames of a said real-time video being transmitted, ...,

  c. one or more remote receivers connected to said network for receiving said [real-time] video from said transmitter, ..."

- Claim 37: "A system for transmitting data representing a stream of video images, comprising: ...

  b) a transmitter coupled to the medical test device for receiving and selectively distributing data representing the stream of video images;

  c) one or more remote receivers for communicating with the transmitter and configured to receive the data representing the stream of video images from the transmitter; and

  d) a network coupled between the transmitter and the one or more receivers for transporting the data representing the stream of video images,

  wherein said transmitter comprises a compressor configured for compressing the data representing the stream of video images, thereby forming a compressed stream of data, and

  wherein said one or more receivers further comprise a decompressor configured for returning the compressed stream of data into an uncompressed state,

whereby the user can see stream of video images in substantially real-time.

17. Thus the combination of Wood and McDonald at least fail to render obvious each of these independent claims. The further combination of Gillio and Ostrow does not add the missing teachings. Applicant submits that all of the claims are patentable over the prior art.

Overview of the Present Invention

18. The present invention teaches an video communication system. The invention includes methods of and apparatus "for *transmitting video* images preferably allows a specially trained individual to remotely *supervise*, instruct, and *observe* administration of medical tests conducted at remote locations" (Summary of the Invention). In order to achieve the objectives of the invention, the system must be able to transmit live video, in real-time. "The transmitting device transmits the video images to the remote receiving device ... for live display" (Summary of the Invention). Unlike Wood and McDonald, the present invention is capable the transmission of live, clinical quality medical video with conventional computer equipment and readily available Internet connections. Unlike Wood, the present invention is not limited to the HTTP Server and Web Browser. Unlike Wood and McDonald, the present invention is not limited to a conventional store-and-forward system.

Claims Amendments to Show Live or Real-time Streaming

19. In the previous reply claims 1, 2, 4, 6, 23, 27, and 32 were amended to use the phrase "stream of video images." Claims 23, 32 and 33 were amended to use the term "real-time." Note that claim 32 was previously presented with the term "live". As discussed above

these admendments (which clarify the scope of the claims), show the necessary distinction over McDonald (as well as Wood).

Claims 1, 23, 33 and 37 Not Made Obvious by Wood and McDonald

20. Claims 1, 23, 33 and 37 require a "stream of video images". Claim 33 requires "real-time video being transmitted". As discussed above, neither Wood's image nor McDonald's captured file are not a stream of video images or real-time video transmission. They do not suggest stream of video images or real-time video transmission, required by independent claims 1, 23, 33 an 37. This fundamental element of the claimed invention is entirely lacking in Wood, McDonald, and their combination. For this reason alone, all four independent claims and their dependent claims should now be allowed.

21. A transmitter as claimed by the present invention is not a modem as disclosed by Wood. The transmitter of the present invention must be able to "function[] as a server within the computer network", can be coupled to both a video source 101 and a recorded video device 104 (see, discussion regarding Fig 1). A modem cannot function as a computer network server. A modem cannot be connected to both a video source and a recorded video device at the same time. A modem does not suggest the transmitter of the present invention.

22. Similarly, Wood's use of the word "video" at 11:59-63 does not clearly teach the real-time streaming video images from the medical device to the remote viewer. In fact in the previous paragraph (11:44-49) Wood teaches away from streaming video in requiring an update button to send a single image. This does not render obvious the real-time streaming of the present invention. Likewise, McDonald teaches away from streaming video, in requiring that a

finite predetermined number of frames be captured and stored directly to the hard disk in a file. One of ordinary skill in the art would understand that streaming video can be infinite in length and does not need to be stored where it is captured.

23. Thus, neither Wood, McDonald, nor their combination suggest the required elements of the claimed invention. Further Wood and McDonald teach away from being able to transmit live, clinical quality streaming video, and instead teaches receipt of single frames, or a pre-recorded files, in a conventional store-and-forward approach. Thus, neither Wood, McDonald, nor their combination, renders the claims obvious.

Claims 2 and 37 Not Made Obvious by Wood and McDonald

24. Claim 2 is dependent of claim 1 and for all the reasons above is patentable over the combination of Wood and McDonald.

25. Further, claims 2 and 37 include a "transmitter [which] comprises a compressor configured for compressing the data representing the stream of video images". As discussed above the combination of Wood and McDonald fails to suggest a transmitter for transmitting a stream of video images. Wood only discloses JPEG and GIF compression algorithms that are typically used only for still images or small, finite number of frames not for video streaming. McDonald teaches the uses of a MPEG encoder card which stores to the hard disk, "If the encoder card is successfully initialized, a file is created for the MPEG data on the host hard disk in step 70." McDonald fails to suggest that the MPEG compressor is used as a component of a video stream transmitter, but instead as a component of a conventional store-and-forward system.

26. Thus, the combination of Wood and McDonald does not suggest the required elements of the claimed invention.

Claims 3 and 37 Not Made Obvious by Wood and McDonald

27. Claim 3 is dependent of claim 2 and for all the reasons above is patentable over the combination of Wood and McDonald.

28. Further, claims 3 and 37 include "one or more receivers [which] comprise a decompressor configured for returning the compressed stream of data into an uncompressed state". As discussed above the combination of Wood and McDonald fails to suggest a transmitter for transmitting a stream of video images or a receiver from communicating with said transmitter.

29. Thus, the combination of Wood and McDonald does not suggest the required elements of the claimed invention.

Claim 4 Not Made Obvious by Wood and McDonald

30. Claim 4 is dependent of claim 3 and for all the reasons above is patentable over the combination of Wood and McDonald.

Claims 5 and 24 Not Made Obvious by Wood and McDonald

31. Claims 5 and 24 are dependent claims and, for all the reasons stated above with respect to independent claims 1 and 23, should be patentable over Wood.

Claims 6 and 25 Not Made Obvious by Wood and McDonald

32. Claims 6 and 25 are dependent claims and, for all the reasons stated above with respect to independent claims 1 and 23, should be patentable over Wood.

33. Further, claim 6 requires a "network... for transporting the data representing the stream video images". As discussed above, the combination of Wood and McDonald does not clearly teach data representing a video stream.

34. Thus, the combination of Wood and McDonald also does not render claims 6 and 25 obvious.

Claims 7 and 26 Not Made Obvious by Wood and McDonald

35. Claims 7 and 26 are dependent claims and, for all the reasons stated above with respect to claims 1, 6, 23, and 25, should be patentable over Wood.

Claims 27 and 34 Not Made Obvious by Wood and McDonald

36. Claims 27 and 34 are dependent claims and, for all the reasons stated above with respect to independent claims 23 and 33, should be patentable over Wood.

37. Claim 27 requires user remote control of "parameters of the stream of *video* images including *frame rate* and *frame size*" (emphasis added). The office actions relies on Wood 10:10-39 and McDonald 9:62-10:15 for teaching remote control of frame rate and frame size. There is no teaching in Wood of controlling video frame rate or video frame size. In fact, the specification does not contain the terms "video frame", "frame rate" or "frame size". Further, McDonald teaches local control (at the review module) of the display rate of a pre-recorded video file that has been stored and forwarded, but fails to teach remote control "stream of video images". McDonald fails to teach remote control of the frame size to be transmitted by a transmitter. Thus the combination of Wood and McDonald fail to suggest the invention as claimed by claim 27.

38. Claim 34 requires an element where a user "control command specifies a *subset of the area* of said digitized *frames* [of a *video being transmitted*]" (emphasis added). While Wood does disclose user remote control of the medical device, Wood does not clearly teach controlling video parameters. There is no teaching in Wood or McDonald of controlling the subset of the area of a video frame being transmitted live. In fact, the specifications do not contain the term "subset".

39. Thus, the combination of Wood and McDonlad does not suggest the required elements of the claimed invention. Further, as discussed above both Wood and McDonald teach away from a live observation of transmitted live, clinical quality stream video

Claim 35 Not Made Obvious by Wood and McDonald

40. Claim 35 is a dependent claim and, for all the reasons stated above with respect to independent claim 33, should be patentable over the combination of Wood and McDonald.

41. Further, claim 35 requires "a compressor which can be configured to use a plurality of video compression algorithms and, wherein said control command allows the remote user to select or change the selection of one of the plurality of video compression algorithms to be used by the transmitter to process said digitized frames." This limitation is not suggested by the combination of Wood or McDonald. Further, McDonald, as cited, teaches the use of a hardware MPEG encoder card which has a single compression algorithm (i.e. MPEG) fixed in hardware; in this respect McDonald teaches away from a plurality of video compression

algorithms and away from being able change the selection of one of the video compression algorithms, especially remotely".

Claim 36 Not Made Obvious by Wood and McDonald

42. Claim 36 is a dependent claim and, for all the reasons stated above with respect to independent claim 33, should be patentable over the combination of Wood and McDonald.

43. Further, claim 36 requires an element were a user "control command allows the remote user to *start or stop* the *transmission* of said [*real-time*] *video* [*being transmitted*]" (emphasis added, limitations of claim 33 inserted). While Wood does disclose user remote control of the medical device as discussed above, Wood does not suggest real-time transmission of streaming video. Likewise, as discussed above McDonald does not suggest real-time transmission of streaming video. The combination of Wood and McDonald lacks any motivation for starting or stopping the real-time transmission, because there is no real-time video transmission.

44. Further, starting and stopping transmission of a video is not inherent in the teaching of Wood, instead Wood teaches away by requiring an update button (see Wood Fig 10 and 11:44-49).

45. The office action relies on McDonald column 11 that discusses display requests. These display requests are associated with the display program that runs on the review module. The review station handles these requests, instead of changing "the operation of said transmitter" as required by the claim language of claim 33. These operations act on a pre-

recorded file that has been stored and forwarded, not on the "*transmission* of said [*real-time*] *video* [*being transmitted*]" as required by the claim.

46. The starting and stopping of the transmitter is not "inherent" because there is more than one way starting and stopping could be implement. This can be understood by considering conventional television broadcast. There are two ways to stop the display of the transmission: 1) turn the TV receiver off, and 2) turn the transmitter off. Viewers at home have the ability to turn their TV receivers off, but only those who control the TV transmitter (e.g. ABC or ESPN or PBS) can turn the transmitter off. The present invention allows the remote viewer to control the operation of the transmitter. Because there are two ways to achieve the result, this limitation is not inherent. As discussed above McDonald teaches starting, pausing, and resuming the *display at the review module(26)*; in this way McDonald teaches away from the present invention as claimed "whereby said user can *remotely control the operation of said transmitter*" (claim 33).

47. Thus, neither Wood, nor McDonald, nor their combination, suggests the required elements of the claimed invention. Further the both teach away from a live observation of transmitted live, clinical quality streaming video. Thus, Wood does not render claim 36 obvious.

IV. Claim Rejections Under 35 U.S.C. 103 in Further Light of Gillio and Ostrow

48. The office action rejected claims 32, 38-43 as being obvious in light of Wood in view of McDonald, and further in view of Gillio and Ostrow under 35 U.S.C. 103(a).

49. Gillio is directed to a virtual surgery system. In the virtual, as opposed to real, surgery system the user of the system sees a simulation video generated at the site of the user, rather than the real video of a real patient. "*Virtual* surgery system or virtual testing system provides a *simulation* or test based on [stored] image data. ... Additionally, a surgical procedure may be *simulated* using image data of a patient in devices simulating the physical instruments a surgeon uses in performing the actual procedure, for example." (Abstract, emphasis added.) The use of the simulation in telesurgery is not claimed and the enablement taught by cited section is minimal. The terse description in Gillio however fails to suggest the required elements as claimed.

Reliance on Gillio

50. The office action states, "...Gillio clearly shows that any live medical procedure would have to have live video associate with it in order for the user to perform the surgery in real time." Gillio at 17:7-35 does not teach what the office action relies on it to suggest. Gillio actually teaches two major uses, or two embodiments:

I. "for a surgeon to perform surgery from a distance, or..." (17:8-9)

II. "to provide consultation to another surgeon performing a real operation by an expert surgeon watching the real operation and instructing the doctor using a simulation of a similar operation, etc." (17:9-12).

51. The first embodiment (I) is further explained, "In an application in which a surgeon performs surgery at a remote location, a robot can be used to simulate hand movements of the surgeon at the remote location via a tele-robotic unit. The robot can move the real

endoscope or other surgical device according to the movements of the surgeon performed using a virtual scope." Here Gillio does not clearly teach that any of the real patient video which is *generated by the medical device* at the site of to patient (and the robot) is received by the surgeon. The only teaching is that the surgeon sees the "virtual scope", namely the simulation.

52. The second embodiment (II) has two variations:

A. "In another embodiment of the present invention, a surgical procedure can be simulated by an expert surgeon, for example, in a library tutorial provided on a video tape, CDROM, electronic device such as a modem, etc." (17:12-17). This embodiment (II.A) fails to teach any "live video" as required by claims 32 and 39.

B. "Alternatively, the simulated procedure can be provided by one surgeon to another surgeon at a remote location in real-time using a *video data feed*. For example, a *surgeon using a real endoscope looking at a real patient and moving the endoscope inside the orifices of a real patient*, can **receive** video corresponding to data transmitted electronically to a remote point (e.g., from the Mayo Clinic or via the Internet), and an expert watching the operation in real-time can *show the actual doctor performing the real surgery a simulation* of the operation or provide particular guidance to the other surgeon performing the real operation. This guidance can be provided on a *display screen in the actual operating room while the surgeon is operating on the actual patient.*" (17:22-35). In this embodiment (II.B), the video is of the simulation, not of the real patient "generated by the medical test device". The simulation video is transmitted the ***opposite*** direction,

namely, the surgeon is actually with the patient and the display (receiver) is in the actual operating room, and the expert is at the transmitter which is coupled to the the simulator, not "coupled to the medical device" or "medical test device", as required by claims (see claim 23 and 27, respectively). In this regard, Gillio fails to provide the suggestion that Wood and McDonald lack, and instead, teaches away from the claimed invention.

53. One of ordinary skill would have understood that the data required to display a simulation is less than the data required to send actual live medical images. The brief reference in Gillio regarding the transmission of simulation data over the Internet does not make claimed invention obvious.

54. Further, one of ordinary skill in the art would have understood the reference to the Mayo clinic to a one-of-a-kind use of expensive satellite "video feed". See Exhibit A, which is a January 1996 bulletin discussing the rare and expensive use of a NASA satellite to transmit medical quality video images. This article points that the satellite had higher quality than land transmission lines and that the cost of the satellite lease was escalating. The technology alluded to in Gillio was not a readily available, general purpose, low cost solution, but one that was only available U.S. government agencies, such as NASA, and kings, such as the King of Jordan. This understanding actually underscores the importance of the present invention, which is a novel solution to a long felt need to have medical quality video transmitted over readily available, low cost data networks, as opposed to leased satellite video feeds. It has the power to bring the medical care currently only available to rich oil sheiks to the rural people of America

55. Another distinction between the present invention and Gillio is that the present invention uses a "data network" such as the "Internet Protocol network" to send "digitized frames" rather than an analog video feed or satellite video feed.

Reliance on Ostrow

56. The office action relies on Ostrow 1:5-11 and 2:23-26, regarding claims 32, 38 and 40. Ostrow does not teach what the office action relies on it to teach. The cost savings of Ostrow come from "eliminating the need for the therapist to be present" (4:23-24), not by providing live remote control for a remote geographic location.

57. Ostrow does not actually teach "remote control" through a network. Instead it teaches "remote" control for programming the robot, but the programming is achieved by using a "virtual reality glove" 100 in the same room as the patient. The glove is connected to the console 20 by a direct wire as shown in Fig 3, or by sensors in the room as shown in Fig 4. *Because the therapist is in the same room with the patient, there is no motivation for video transmission.* Further, teaches away from having a human performing *live* remote control, instead the robot simply repeats previously programmed repetitive movements. Thus, there is no motivation to combine Ostrow with the other references to form the suggested combination.

58. Further, Ostrow uses the word "ultrasound", but the cited reference is the use of ultrasound waves, not for imaging (generating a stream of video images), but for "automated delivery of drugs". "Ultrasonic methods include phonophoresis and sonophoresis. Phonophoresis refers generally to the use of sound waves to enhance the delivery of topically applied drugs. Sonophoresis is similarly defined as ultrasonically induced drug delivery by using

high energy ultrasonic waves to drive drug molecules through the skin." (Ostrow 1:40-45). Ostrow briefly hints at using "diagnostic ultrasound" but this one sentence at 2:23-26 is not enabling and does not clearly teach the use of the robotic arm of Ostrow in a "system for allowing a user to remotely control a medical device" (claim 32 via 23), a "system for transmitting data representing a stream of video images" (claim 38 via 37) and a "system for transmitting data representing a stream of video images and control commands" (claim 40).

59. Applicant submits that the inclusion of Ostrow with the other references is improper for all the reasons stated above.

Application of Rundell

60. The office action cites In re Rundell, "It is not invention to broadly provide a mechanical or automatic means to replace a manual activity which can be accomplished the same result." However, as evidenced by the issuance of the Ostrow Patent, it is possible to patent something that includes "a robotic arm" that duplicate "the motion of repetive hand movements formerly manual done by a clinician". As a lay person, I understand that if the invention provides a new, different, or unexpected result, then a claim that includes a robotic device can be patented. The present invention provides a new, different, and valuable result. For example, there is a limited number of expert cardiologists in the world. Many of the people who need medical care are located in remote areas or countries where no expert cardiologist is available. The present invention does more than replace a set of unskilled hands at the side of the patient. *It brings the hands of the extremely skilled expert to a patient in a way that was not possible prior to this invention.* In fact there has been a long felt need for such a solution and prior to the present

invention this need could not be met in a cost effective way. For example, the present invention would allow the top heart surgeons in the world to provide care for multiple people in multiple diverse geographic regions on the same day, which would not be possible without the present invention. Additionally, this could be done a significantly reduced travel and opportunity costs. One of the largest concerns in the United States today is the cost of providing medical care. This invention provides a valuable way to provide quality care in remote areas while drastically reducing the cost of providing that superior care.

Claims 32 and 38-43 Not Rendered Obvious by Wood, McDonald, Gillio, and Ostrow

61. Claim 32 is a dependent claim and, for all the reasons stated above with respect to independent claim 23, should be patentable over the combination the four cited patents.

62. Claims 38 and 39 are dependent claims and, for all the reasons stated above with respect to independent claim 37, should be patentable over the combination the four cited patents.

63. Claims 40-43 for all the reasons stated above with respect to independent claim 37, should be patentable over the combination the four cited patents.

64. The elements of claims 32 and 39 include more than *broadly providing a mechanical means* to replace manual activity that can accomplish the *same result*. In addition to adding a requirement for robotic device, claim 32 requires an element where the video image is "a *substantially live video*" and an element where the "remote receiver *receives* and *displays* said *live video* substantially *in real-time*", whereby the user can control the robotic device "while viewing

the live video". As discussed above the proposed combination does not teach the required elements of "a medical test device for generating the stream of video", "transmitter coupled to the medical test device for receiving and selectively distributing data representing the stream of video images", "stream of video images", "live video", a receiver that "receives and displays said live video".

65. Further, claim 32 has a restriction "wherein said robotic device responds to said control commands in substantially real-time," and "whereby the remote user can perform procedures with the robotic device and the medical device with substantially real-time control and real-time visual feedback." The invention as claimed by claims 32 and 39 allows the remote doctor to perform a remote procedure while viewing live video *from the medical device* at the patient's site. The live video feedback is required to enable the doctor to have correct perception to guide the doctor in performing a remote procedure. The combined reference fail to teach or enable the doctor to view the live video in real-time of the patient's medical tests; consequently the remote doctor cannot safely perform the remote procedure. The invention as claimed results in a *substantially new* and *different result* than the result possible with the teachings of the combined references. This invention brings the hands of the physician from a remote viewing location not only to the medical device but to the patient as well, which is much different than merely replacing the hands of a non-physician. Thus, the combined references fail to render the claims obvious, even under the cited case law.

Claim 39 Not Rendered Obvious by Wood, McDonald, Gillio, and Ostrow

66. Further, regarding claim 39 the office action states, "it would have obvious to one of ordinary skill in the art [] that if the robotic device were to be controlled remotely it would have to be controlled via a transmitting device and the video would have to sent to the user in real time. As discussed above Gillio does not teach the limitations of claim 39. There would have been other ways to control a robotic device other than using the "a transmitter coupled to the medical test device for receiving and selectively distributing data representing the stream of video images", for example, the robot could be controlled via a totally independent communications path that excludes the video stream transmitter. Further, as discussed above Gillio teaches the video being send by rare and expensive satellite video feed, or being sent the opposite direction, namely to the patient from a simulator, rather than from the patient's site.

Claim 40 Not Rendered Obvious by Wood, McDonald, Gillio, and Ostrow

67. Regarding claim 40 the office action states, "as for the data pipe limitation of claim 40...any transmission medium is considered to be a data pipe capable of achieving the desired result. The data pipe and the control link represent two separate logical communications paths that may travel over the same physical transmission medium. The office action fails to clearly show how the cited prior art combination teaches the details of the elements of claim 40, including:

- distinct d) "data pipe" and e) "control link,
- ii) "video server" with "first buffer" and "second buffer",
- iii) "listener" with its limitations,

- iv) "transmitter video control",
- v) "video client" with "third buffer", and
- vi) "receiver video control".

68. Applicant submits that the office action failed to clear provide the basis for rejection of claim 401

Claim 41 Not Rendered Obvious by Wood, McDonald, Gillio, and Ostrow

69. Claim 41 is a dependent claim and, for all the reasons stated above with respect to independent claim 40, should be patentable over the combination the four cited patents.

70. Further, McDonald fails to suggest a "stream of video", especially a system where the "user can remotely control the video settings and compressor settings while viewing said stream of video images" and "user can control the recording of portions of said stream of video images in one or more instances of said recorded video and can control the selection and playback of at least one of said instances of said recorded video". Instead, as discussed above McDonald only teaches a capture module which can record (store) the video to a hard disk. Specifically, McDonald does not suggest remote control of the "video recorder" or "a recorded video transmitter".

71. Further, claim 41 teaches yet another distinct ix) "recorded video data pipe" which is different than the "data pipe" and the "control link".

72. Further, McDonald at 9:62-10:15 does not teach the remote user "*control the recording of portions of said stream of video images* in one or more instances of said recorded

video". The cited reference discusses the review module, which operates on the display end (26), not the capture end (22). McDonald simply lacks any teaching of remote control of recording.

Claim 42 Not Rendered Obvious by Wood, McDonald, Gillio, and Ostrow

73. Claim 42 is a dependent claim and, for all the reasons stated above with respect to independent claim 41, should be patentable over the combination the four cited patents.

74. McDonald 10:16-25 does not teach "video *recorder* further comprises an edit list, said edit list comprising a list of one or more segments of the recorded video, *whereby specified portions of the recorded video can be selected for transmission*". The cited reference discusses the review module that operates on the display end (26) not the capture end (22). McDonald simply lacks any teaching of remote control of selection for transmission. Instead, McDonald teaches store-and-forward of the entire MPEG file. This is different than the invention of claim 42 where only the selected portions require transmission, thus saving time and network bandwidth, resulting in more efficiency and cost savings.

Claim 43 Not Rendered Obvious by Wood, McDonald, Gillio, and Ostrow

75. Claim 43 is a dependent claim and, for all the reasons stated above with respect to independent claim 41, should be patentable over the combination the four cited patents.

76. McDonald 10:16-40 does not teach "video *recorder* further comprises an edit list, said edit list comprising a list of one or more segments of the recorded video, whereby specified portions of the recorded video can be *selected for special processing*". The cited

reference discusses the review module that operates on the display end (26) not the capture end (22). McDonald simply lacks any teaching of remote control of selection for special processing. Instead, McDonald teaches store-and-forward of the entire MPEG file. This is different the invention of claim 43 where the selected portions receive special processing.

V. Reconsideration Requested

77. The undersigned respectfully submits that, in view of the foregoing remarks, the rejections of the claims raised in the Office Action dated August 11, 2004 have been fully addressed and overcome, and the present application is believed to be in condition for allowance. It is respectfully requested that this application be reconsidered, that these claims be allowed, and that this case be passed to issue. If it is believed that a telephone conversation would expedite the prosecution of the present application, or clarify matters with regard to its allowance, the Examiner is invited to call the undersigned inventor at 408-739-9517.

Respectfully submitted,

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Kendyl A. Román
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Date: February 11, 2005